



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/493,903	01/28/2000	Jay McCormack	00034	2805

7590 11/25/2003

Edward L Pencoske Esquire
Thorp Reed & Armstrong
One Oxford Centre
301 Grant Street
Pittsburgh, PA 15219-1425

EXAMINER

SANTIAGO, ENRIQUE L

ART UNIT	PAPER NUMBER
----------	--------------

2671

12

DATE MAILED: 11/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

TS

Office Action Summary

Application No.

09/493,903

Applicant(s)

MCCORMACK ET AL.

Examiner

Enrique L. Santiago

Art Unit

2671

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9, 12, 14-20, 24, 25 and 27-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 20, 25 and 27-29 is/are allowed.
- 6) ☒ Claim(s) 1-8, 12, 14-16, 19, 24, 30, 32-36, 38, 39 and 41 is/are rejected.
- 7) ☒ Claim(s) 9, 17, 18, 31, 37 and 40 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8, 12, 14-16, 19, 24, 30, 32-36, 38, 39 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Balz et al. US patent no. 5,929,865, in view of Usami et al. US patent no. 5,379,371, and further in view of Trew et al. US patent no 5,280,530.

-Regarding claim 1, 12 and 24, Balz et al. teaches a shape decomposition module 14 (see fig 1, column 2, lines 59-62) for decomposing a shape into a group of sub-shapes (see fig. 2, column 2, line 59-column 3, line 8, column 3, lines 39-53), a shape recognition/interpreter module 20 in communication with the shape decomposition module (see fig 1, column 3, lines 40-53); and a rule application module in communication with the shape recognition/interpreter (see fig 1, column 2, lines 46-58, column 3, lines 40-53).

Balz et al. does not directly teach an apparatus for arranging sub-shapes in a hierarchical order, however in similar art Usami et al. teaches said apparatus (see figs. 4 and 12, column 2, lines 58-59, column 5, lines 19-21, column 15, lines 21-23).

Therefore it would have been obvious to one skilled in the art at the time of the invention to use said apparatus, because it would make it possible to define a geometrical configuration or shape of a three-dimensional model in terms of a set of graphic elements in the computer based on the input information of a detailed model. Additionally the information of the visual field

Art Unit: 2671

could be used for determining the position of the point of view in three-dimensional space, which may then be given in terms of the coordinate values of an orthogonal (X-Y-Z) coordinate system (see Usami et al. column 5, lines 30-39).

Balz et al. and Usami et al. do not directly teach an apparatus for recognizing transformations of a first shape in a second shape.

However in similar art Trew et al. teaches said method (see the abstract, column 2, lines 20-42, column 3, line 64, column 4, line 2, column 15, lines 3-5).

Therefore it would have been obvious to one skilled in the art at the time of the invention to use said method, because it would be used to identify a face (or other objects) in a picture, and for tracking a face (or other objects) in successive frames (see Trew et al. column 5, lines 41-56).

-Regarding claims 2 and 14, Balz et al. further teaches a shape decomposition module for decomposing a left-hand shape into at least one sub-shape belonging to one of a plurality of subshapes (see figs. 1 and 2, column 2, line 59-column 3, line 8, column 3, lines 39-53).

-Regarding claims 3 and 15, Usami et al. teaches a method wherein the sub-shape groups have a hierarchical order of decreasing constraints (see figs. 4 and 12, column 2, lines 58-59, column 5, lines 19-21, column 6, lines 24-30, column 15, lines 21-23).

-Regarding claim 4, Balz et al. further teaches a shape decomposition module for decomposing a two-dimensional left-hand shape into one or more sub-shapes (see fig. 2, column 2, line 59-column 3, line 8, column 3, lines 39-53).

-Regarding claims 5 and 6, Balz et al. does not directly teach a shape decomposition module for decomposing a three-dimensional left-hand shape and a one-dimensional left-hand shape of a shape into one or more sub-shapes.

However it would have been obvious to one skilled in the art at the time of the invention include said functions as part of the shape decomposition module, because it would provide a method for converting graphics data into raster lines that is significantly less complex and time consuming than conventional conversion methods, and would be suitable for use with automated manufacturing equipment (see Balz et al. column 4, lines 39-45).

-Regarding claim 7, Balz et al. further teaches a shape recognition module for searching a shape for a transformation of the sub-shape (see the abstract, column 3, lines 39-63, column 4, lines 14-45).

-Regarding claims 8 and 16, Balz et al. further teaches a method wherein the shape recognition module is for recognizing a transformation of a first shape by searching the first shape for a transformation of the sub-shape (see fig. 2, column 2, line 59-column 3, line 8, column 3, lines 39-63, column 4, lines 14-45).

-Regarding claim 19, Balz et al. further teaches an intelligent rule selection module in communication with the parametric shape interpreter (see fig 1, column 3, lines 40-53).

-Claim 30 combines the limitations of claim 12 with searching the second shape for a transformation of the sub-shape.

Balz et al. and Usami et al. do not directly teach a method wherein the shape recognition module is for searching a second shape for a transformation of the sub-shape.

However in similar art Trew et al. teaches said method (see the abstract, column 2, lines 20-42, column 3, line 64, column 4, line 2, column 15, lines 3-5).

Therefore it would have been obvious to one skilled in the art at the time of the invention to use said method, because it would be used to identify a face (or other objects) in a picture, and

Art Unit: 2671

for tracking a face (or other objects) in successive frames (see Trew et al. column 5, lines 41-56). Additionally it would allow measuring the distortion of an object as it changes orientation, which would enable prediction of the new appearance of an object (see Trew et al. column 2, lines 42-48).

-Regarding claims 32, 34, 36 and 39, Balz et al. teaches decomposing a first shape into a plurality of sub-shapes (see figs. 1 and 2, column 2, line 59-column 3, line 8, column 3, lines 39-53).

Balz et al. does not directly teach an apparatus for arranging sub-shapes in a hierarchical order, however in similar art Usami et al. teaches said apparatus (see figs. 4 and 12, column 2, lines 58-59, column 5, lines 19-21, column 15, lines 21-23).

Therefore it would have been obvious to one skilled in the art at the time of the invention to use said apparatus, because it would make it possible to define a geometrical configuration or shape of a three-dimensional model in terms of a set of graphic elements in the computer based on the input information of a detailed model. Additionally the information of the visual field could be used for determining the position of the point of view in three-dimensional space, which may then be given in terms of the coordinate values of an orthogonal (X-Y-Z) coordinate system (see Usami et al. column 5, lines 30-39).it would improve the process of converting design data into pixel data that can be used with automated manufacturing machinery to improve the production yield (see Baltz et al. column 1, lines 5-44).

Balz et al. and Usami et al. do not directly teach searching a second shape for said plurality of sub-shapes; and identifying instances of said sub-shapes based on said searching.

Art Unit: 2671

However in similar art Trew et al. teaches said method (see the abstract, column 2, lines 20-42, column 3, line 64, column 7, lines 7-14, column 15, lines 3-5).

Therefore it would have been obvious to one skilled in the art at the time of the invention to use said method, because it would be used to identify a face (or other objects) in a picture, and for tracking a face (or other objects) in successive frames (see Trew et al. column 5, lines 41-56).

-Regarding claims 33 and 35, Balz et al. further teaches an intelligent rule selection module in communication with the parametric shape interpreter (see fig 1, column 2, lines 46-58, column 3, lines 40-53).

-Regarding claims 38 and 41, Trew et al. teaches applying a rule when all of a plurality of sub-shapes from a first shape are identified in a series of second shapes (see column 2, lines 20-42, column 3, line 64, column 4, line 2, column 15, lines 3-5).

Allowable Subject Matter

Claims 20, 25, 27-29 are allowed.

Claims 9, 17, 18, 31, 37 and 40 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments have been considered but are moot in view of the new grounds of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Art Unit: 2671

US patent no. 6,091,420

US patent no. 6,396,952 B1

Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Enrique L. Santiago whose telephone number is (703) 306-5908. The examiner can normally be reached on Monday to Friday from 7:00 A.M. to 3:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Zimmerman, can be reached at (703) 305-9798.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

Art Unit: 2671

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,
Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or
proceeding should be directed to the Technology Center 2600 Customer Service Office whose
telephone number is (703) 306-0377.

Enrique L. Santiago

November 16, 2003



MARK ZIMMERMAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600